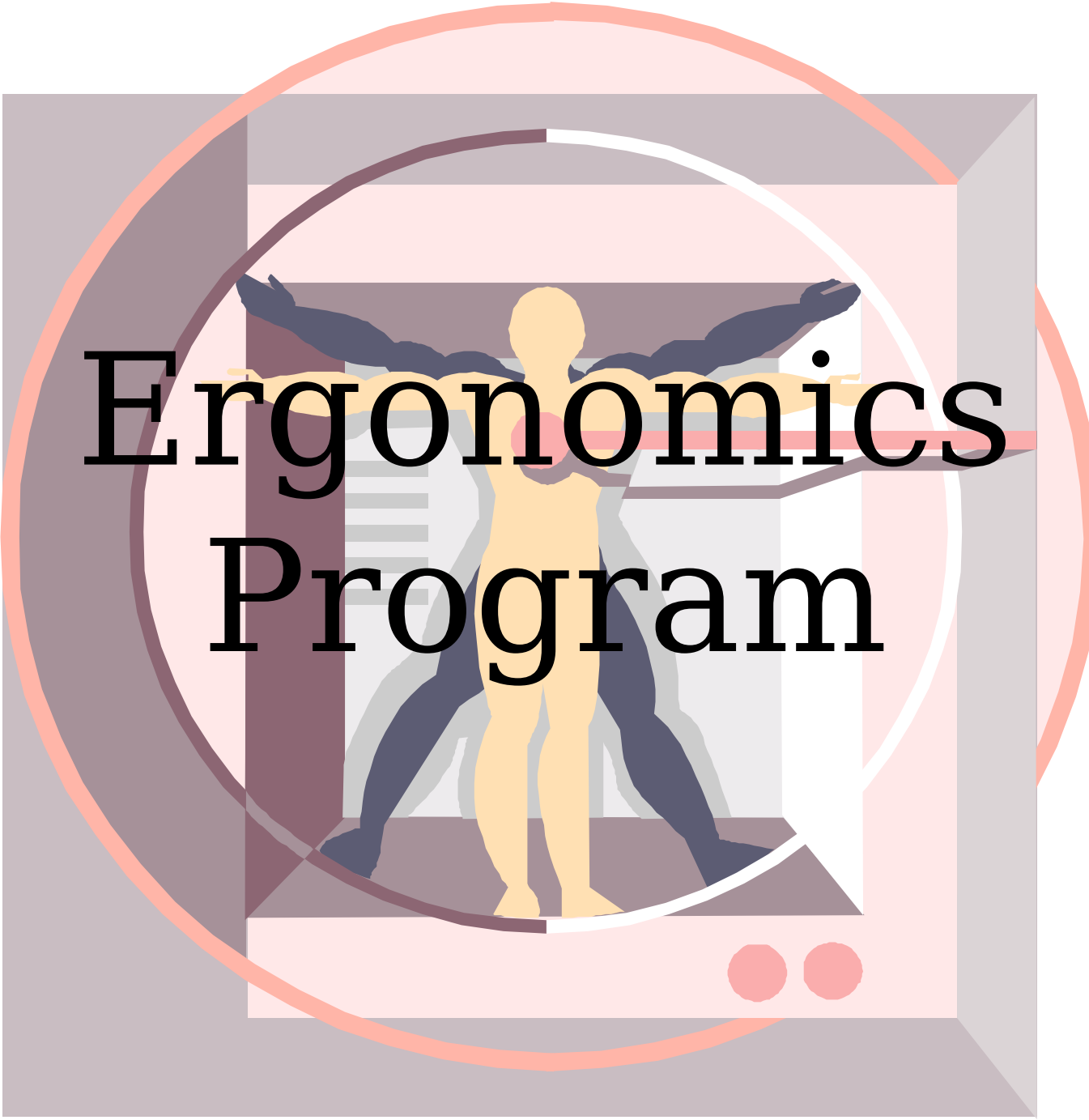


Ergonomics Program

A stylized graphic featuring a yellow Vitruvian Man figure with arms and legs extended, centered within a white circle. This circle is set against a background of horizontal stripes in shades of pink, purple, and grey. The entire composition is framed by a thick, light pink border that resembles a computer monitor, complete with two small red circular buttons at the bottom right.

References

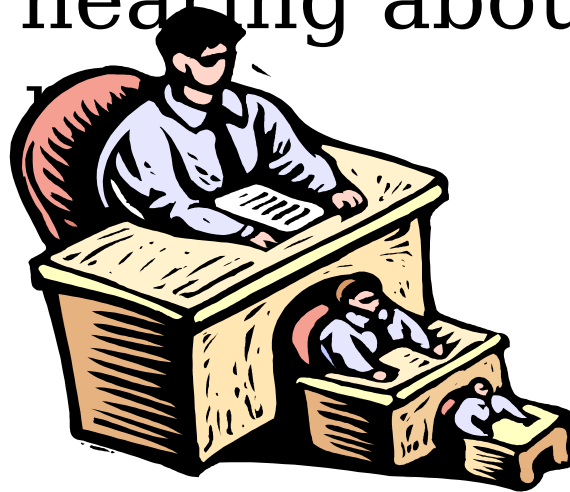
- NAVMC DIR 5100.8, Chapter 19
- OPNAVINST 5100.23G
- NIOSH PUB. NO. 97-117
- DODI 6055.1

Overview

- ID Musculoskeletal Disorders
- Apply Engineering Controls
- Apply Administrative Controls
- Reduce Musculoskeletal Disorders
- Describe how to incorporate ergonomics into repair or replacement of tools, equipment or facilities

What is **ERGONOMICS?**

- Matching the work place to the worker
- OSHA enacted the Ergonomics Program
- Why are we hearing about Ergonomics



Two Broad Categories of Workplace Disorders

- Injuries:
 - cut, crush, or fall
- Illnesses:
 - repeated exposure to various substances, hazards, or environmental conditions

Scope of Ergonomic Illnesses

- ***Cumulative trauma disorders***
(CTDs)
 - Repeated biomechanical stress
 - Damage to the tendons, tendon sheaths, related bones, muscles, and nerves of:
 - Hands, wrists, elbows, shoulders, neck, back.

Scope of Ergonomic Illnesses cont.

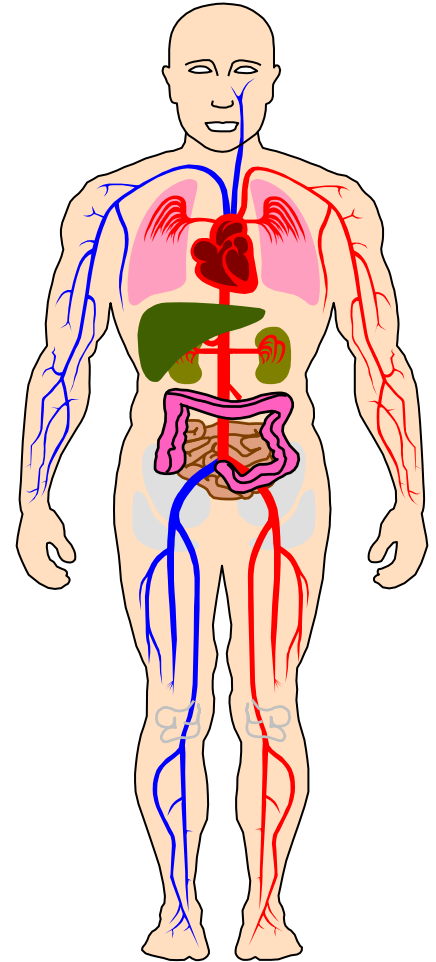
- ***Musculoskeletal disorders***
(MSDs)
 - Neck, back, shoulder, elbow, hand, wrist, and fingers
 - Nerves, tendons, cartilage, ligaments, and muscles
 - MSDs can happen to anyone

Scope of Ergonomic Illnesses cont.

- ***Work-related musculoskeletal disorders*** (WMSDs)
 - Caused by or made worse by the work environment
 - Affect or reduce performance capabilities

Frequently Occurring Occupationally Induced Disorders

- Carpal Tunnel Syndrome
- Tendonitis
- Tenosynovitis
- Synovitis
- Stenosing Tenosynovitis
of the fingers
- Low back pain



Potential Indicators and Symptoms of CTDs

- Trends in accidents and injuries
- Incidents of CTD
- Absenteeism
- High turnover rate
- Working conditions noted by people with disabilities

Potential Indicators and Symptoms of CTDs cont.

- Complaints about musculoskeletal pain
- High overtime and increased work rate
- Manual material handling/repetitive motion task
- Poor product quality

Risk Factors

- ***Force***: physical effort required to maintain control of equipment or tools
 - perform heavy lifting, pushing, pulling, or carrying
- ***Repetition***: performing the same motion
 - prolonged typing, assembling components, and repetitive hand tool usage

Risk Factors cont.

- ***Awkward postures***: positions that significantly deviate from the neutral position
 - working over-head, extended reaching, twisting, squatting, or kneeling
- ***Static postures***: holding a fixed position or posture
 - gripping tools that can't be set down
 - standing in one place for prolonged

Risk Factors cont.

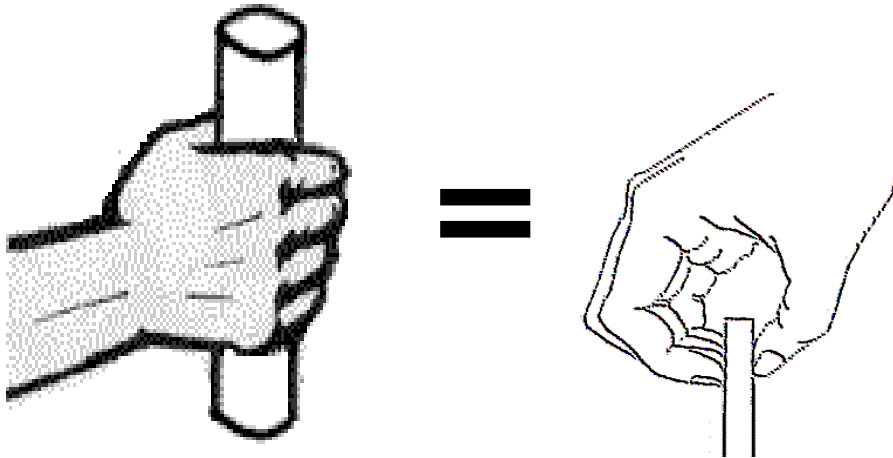
- ***Vibration***: specific part of the body comes into contact with a vibrating
 - chain saw, electric drill, chipping hammer, wood planer, punch press, or packing machine
- **Whole body vibration** occurs when standing or sitting in vibrating environments
 - driving a truck over bumpy roads or operating a jack hammer

Risk Factors cont.

- ***Contact stress***: continuous contact between sensitive body tissues and hard or sharp objects

Hand Force

A power grip can
be 5 times stronger
than a pinch grip



10
lbs.

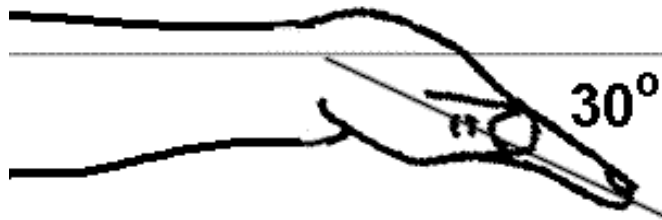
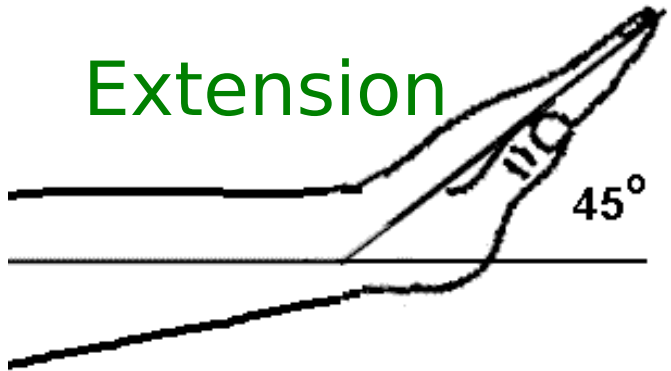
2
lbs.

Takes 4.6 lbs. of
force

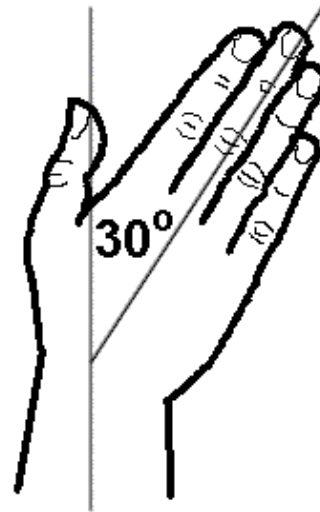


Wrist Bent

Extension



Flexion



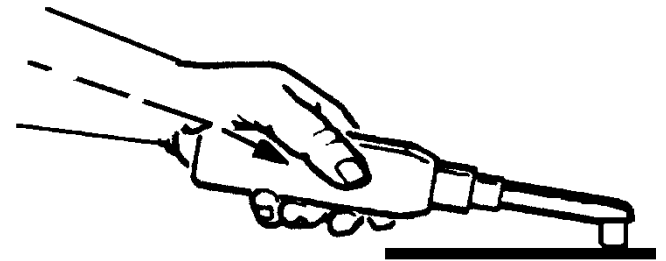
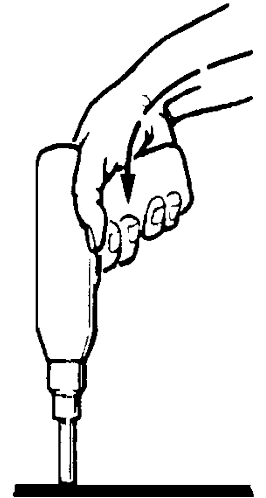
Ulnar deviation

Tool Use

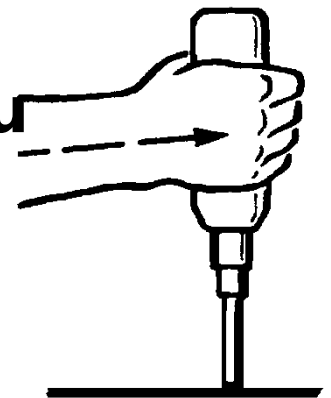
Handles get smaller, but hand does not



Working with bent wrists decreases grip strength



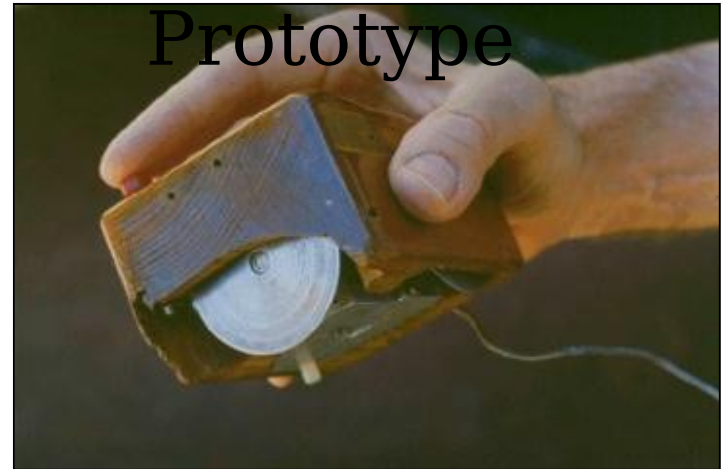
Use tools that let you keep your wrist straight



Intensive Typing



The
Prototype



Repeated Impacts



Frequent, Awkward, or Heavy Lifting



Vibration



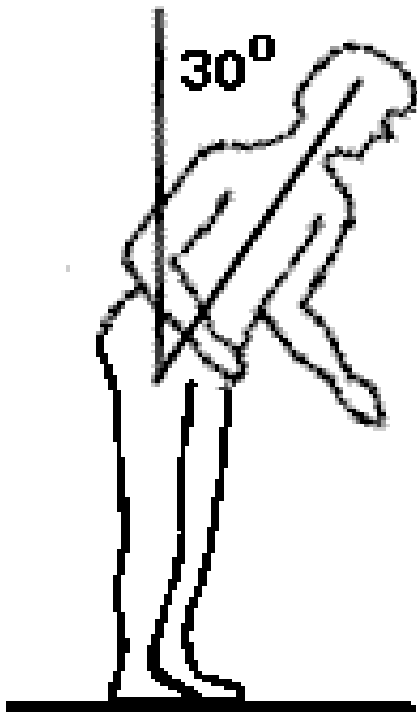
Repetitive Motion



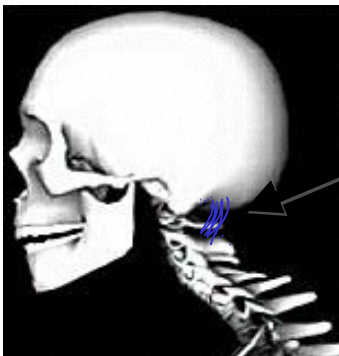
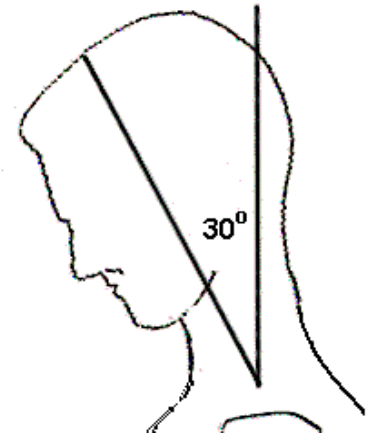
Awkward Positions



Back Bent More Than 30 Degrees

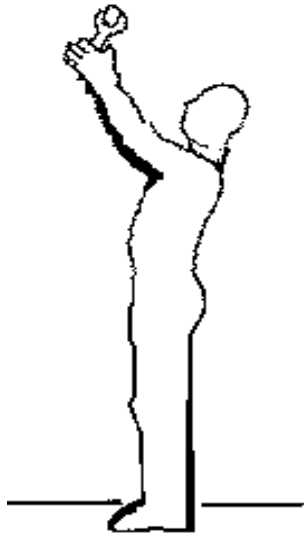
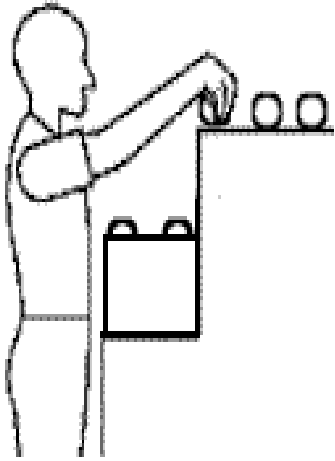


Neck Bent More Than 30 degrees



Shortened
muscles
compress
nerve

Hands Over Head or Elbows Above Shoulders



Recent History

- WMSDs = half of all rated military disabilities
 - one third reported civilian injuries and illnesses within the Marine Corps
- Increase in reporting WMSDs
 - Changes in work processes
 - Increased awareness

Management Commitment and Personnel Involvement

- Partnership between all working levels is essential to prevent WMSDs
- Command emphasis and management commitment
 - Personnel involvement is essential

Hazard Prevention and Control

- Eliminate, reduce, or control the presence of risk factors
 - Engineering controls
 - Administrative controls
 - PPE
 - DOD does not recognize back belts or wrist splints as PPE

Engineering Controls

- Preferred mechanism for controlling ergonomic hazards
- Redesigning the work station, work methods, and tools

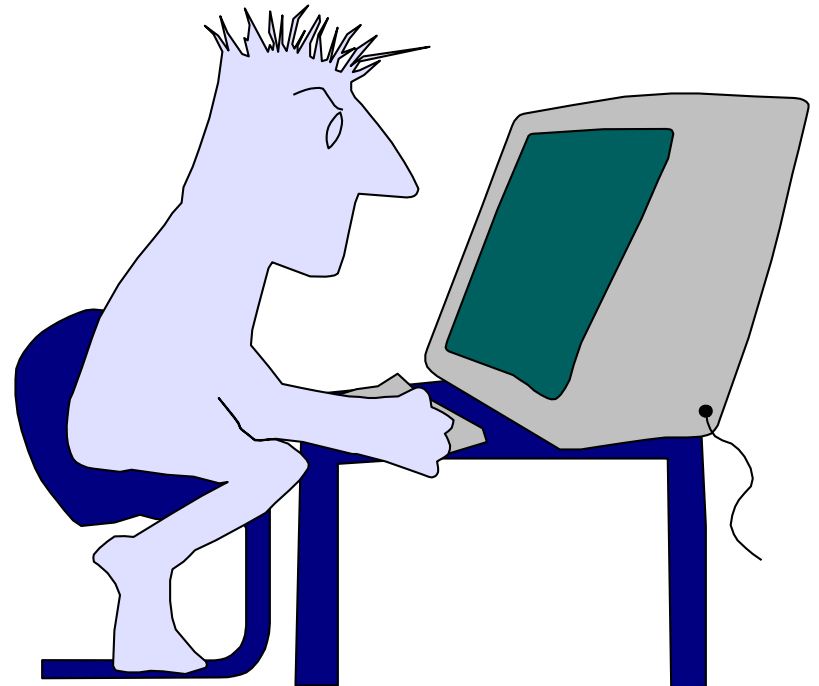
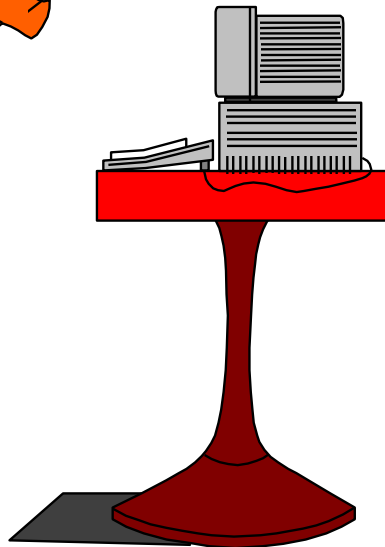
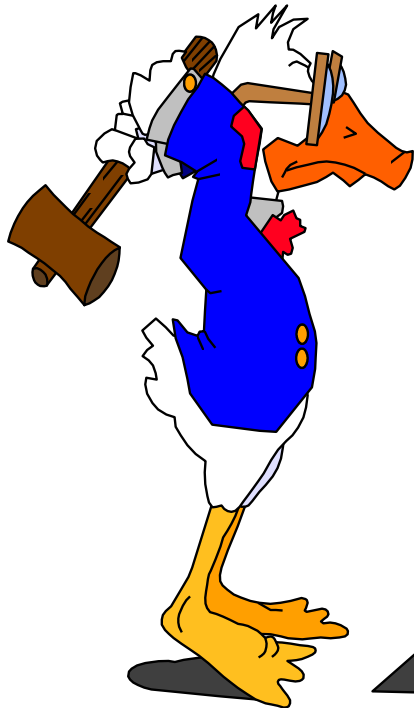


Administrative Controls

- Rotating personnel to jobs with dissimilar physical requirements
- Establishing work/rest schedules
- Training personnel to use appropriate work methods

Work Station Design

Workstations must be easily adjustable to accommodate the worker performing the task



*Height
of the
Monitor*

Viewing Angle

*Angle
of the
Head*

Distance to the Screen

Wrist Rest

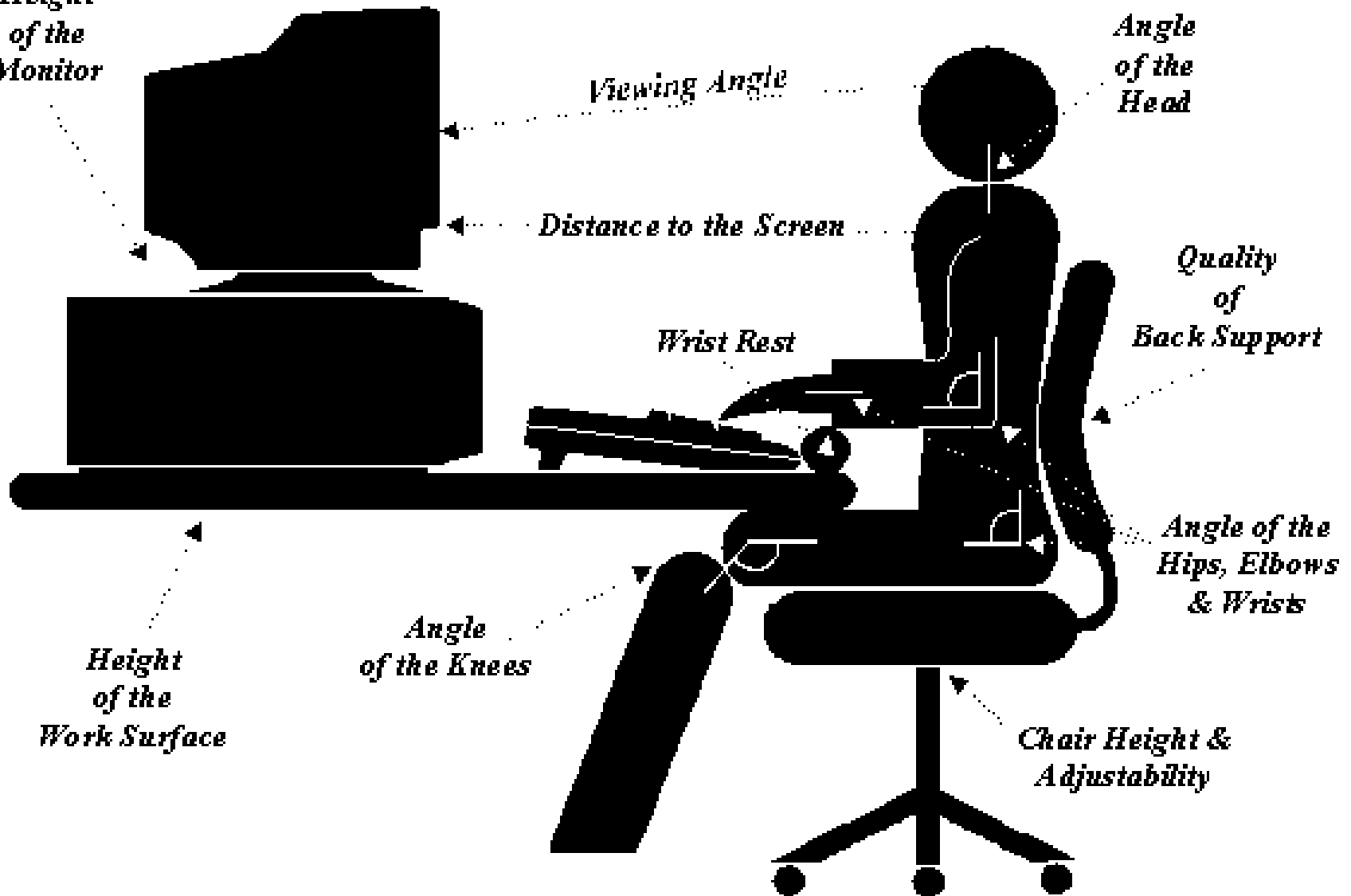
*Quality
of
Back Support*

*Angle of the
Hips, Elbows
& Wrists*

*Height
of the
Work Surface*

*Angle
of the Knees*

*Chair Height &
Adjustability*



Training

- Provided to all Marine Corps personnel
- Recognize risk factors and understand procedures used to minimize the risks
- Refresher training will be provided annually or if new risks are discovered

Training Elements

- Ergonomic definitions and concepts
- Contributing physical risk factors and personal trait
- How to recognize and report early warning signs and symptoms of WMSDs

Training Elements cont.

- How to prevent WMSDs by recognizing risk factors and basic elements of effective design
- Wellness and Semper Fit Programs

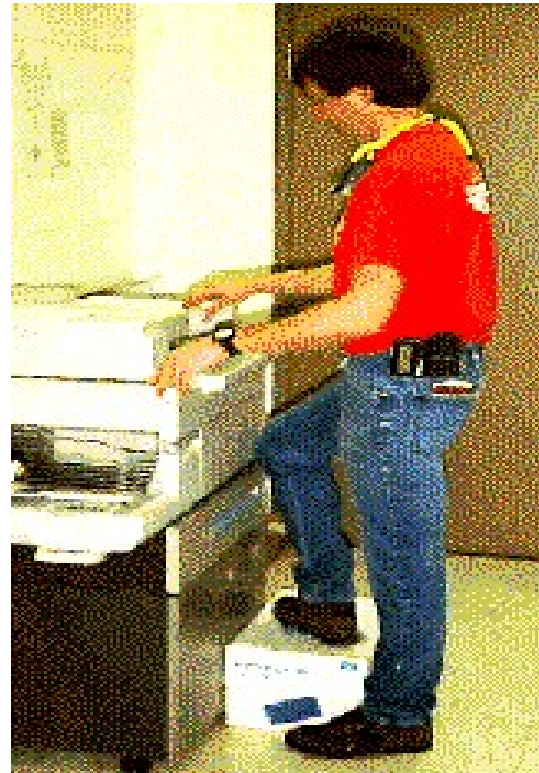
Back Injury Training

- Anatomy and physiology
- Biomechanics of lifting
- Weight control
- How to avoid back injuries
- Physical fitness



Standing Posture

- Keep your spinal column aligned in its natural curves
- Prop one foot up on a stool



Shift and Stretch

- Shift your posture often
- Stretch frequently
- Keep your body flexible (not rigid or fixed)
- Don't force your body to conform to its workspace



Push not Pull

- Can you slide it instead of lifting it



Use Lifting Devices

- Use proper equipment
 - Hand trucks
 - Forklifts
 - Dollies
 - Use gloves if needed



Stretch and be Ready

- Stretch your muscles or warm up before lifting
- Slip resistant shoes
- Clear a pathway before you move the item



Lift with Your Legs

- Plant your feet firmly
- get a stable base
- Bend at your knees -
not your waist
- Tighten your
abdominal muscles to
support your spine

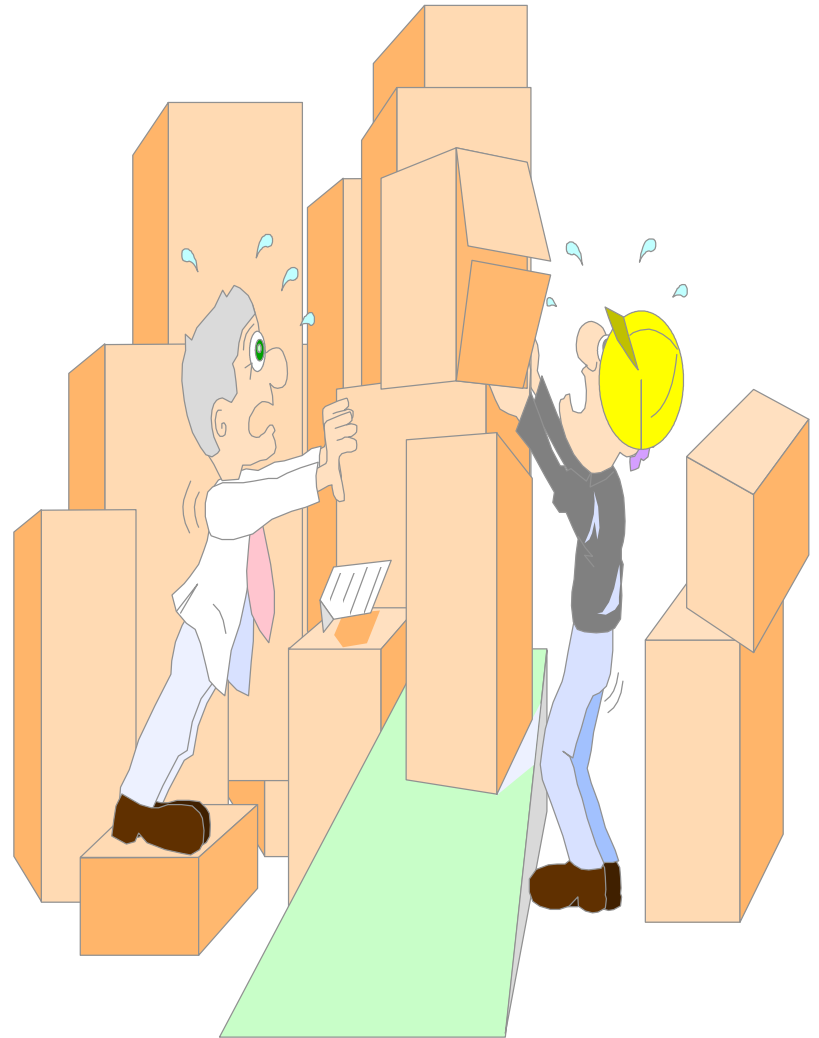


Lift with Your Legs cont.

- Get a good grip - use both hands
- Keep the load close to your body
- Use your leg muscles as you lift
- Keep your back upright, keep it in its natural posture
- Lift steadily and smoothly without jerking

Supervisors Responsibilities

- Ensure personnel receive training
- Identify and report potential risk factors
- Request assistance for managing risk factors



Installation safety office Responsibilities

- Develop and implement an ergonomics program
- Provide training and support to tenant commands

